

Appl. No. 09/612,628
Amdt. Dated July 8, 2003
Reply to Office action of April 8, 2003
Attorney Docket No. P11542/040020-276
EUS/J/P/03-3066

Amendments to the Drawings:

The attached sheets of drawings include changes to Figures 1-4. These sheets, which include Figures 1-4, replace the original sheet including Figures 1-4.

Attachment: Replacement Sheets

Appl. No. 09/612,628
Amdt. Dated July 8, 2003
Reply to Office action of April 8, 2003
Attorney Docket No. P11542/040020-276
EUS/J/P/03-3065

REMARKS/ARGUMENTS

1.) Amendments

The Applicants have amended Claims 1, 3, 5, 8, 11, 14 and 16. Claims 6 and 7 are canceled. Claims 15 and 8-16 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

2.) Examiner Objections

Claims 1, 5, 7, 8, 10, 11, 14 and 15 are objected to because of informalities. The Applicants have amended the subject claims to correct the informalities. Claim 7 has been canceled rendering the rejection of that claim moot.

3.) Claim Rejections – 35 U.S.C. § 102(e)

Claim 16 was rejected under 35 U.S.C. 102 (e) as being anticipated by United States Patent No. 5,757,810 issued to Fall (hereinafter "Fall"). The Applicant respectfully traverses the rejection.

The present invention discloses a method and system that allows a decoder to handle all errors that may occur during transmissions from the speech encoder. This allows the base station to transmit speech blocks that may have errors to a decoder, which determines how or whether to correct the speech blocks. Typically error detection is made in the nodes of a transmission chain through which a speech packet passes, i.e., a base station. If the base station detects an error in a speech packet, it may stop the packet from being further transferred to a receiving decoder. However, the decoder has better means for handling errors than the base station. The present invention adds parity bits to the data stream at the encoder allowing transmission through the entire transmission chain. The receiving decoder may choose to neglect a packet or hide the errors in the decoded speech depending on the type of the error detected. (Page 9. Lines 17-22).

Appl. No. 09/612,628
Amdt. Dated July 8, 2003
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Attorney Docket No. P11542/040020-276
EUS/J/P/03-3065

The Fall reference is a system for detecting and monitoring the number of speech transmission errors in a transmission link. The determination of the number errors in the transmission link indicates the quality of the transmission link and is compared to a predetermined threshold. If a call has errors below a certain threshold the call may be disconnected. (Col. 3, Lines 42-62). Fall is focused on determining and reporting errors so that an action may be taken on a call in progress. In fact, Fall filters detected errors and a disclosed supervisory function reports on the quality of the transmission link and the link is avoided if the signal quality is insufficient. (Col. 3, Line 63 – Col 4, Line 11).

In contrast to the Fall reference, the present invention passes data that likely includes errors by adding parity bits to the data stream (or data blocks) in the encoder. The invention provides for avoiding the discarding of distorted data and completing the transmission to the decoder where the decoder actually determines whether or how to correct a distortion in the data. (Page 9, Lines 3-28) The invention also allows for accurately decoding packets that may be erroneously detected (not really "bad" data) by some node in the transmission chain. Fall actually teaches away from the present invention by eliminating errors prior to decoding and Fall does not suggest passing errors through to the decoder. Therefore, the Applicant respectfully submits that the Fall reference does not anticipate Claim 16.

4.) Claim Rejections – 35 U.S.C. § 103 (a)

Claims 1-3 and 8-10 were rejected under 35 U.S.C § 103(a) as being unpatentable over Hellwig et al (US 6,295,302 B1) (hereinafter "Hellwig") in view of DeJaco (U.S. Patent 6,205,130 B1) (hereinafter "DeJaco"). The Applicant respectfully traverses the rejection and directs the Examiner's attention to amended Claim 1.

The present invention discloses a method and system that allows a decoder to handle all errors that may occur during transmissions from the speech encoder. This allows the base station to transmit speech blocks that may have

Appl. No: 09/612,628
Amdt. Dated July 8, 2003
Reply to Office action of April 8, 2003
Attorney Docket No. P11542/040020-276
EUS/JIP/03-3065

errors to a decoder which determines how or whether to correct the speech blocks. Typically error detection is made in the nodes of a transmission chain through which a speech packet passes, i.e., a base station. If the base station detects an error in a speech packet, it may stop the packet from being further transferred to a receiving decoder. However, the decoder has better means for handling errors than the base station. The receiving decoder may choose to neglect a packet or hide the errors in the decoded speech depending on the type of the error detected. (Page 9. Lines 17-22) Further, the present invention adds parity bits and check bits to a speech block that is part of a speech frame. The speech frame is sent to the base station and speech parameters associated with the speech block are sorted according to importance. The parity bits are used for error discovery during transmission through the radio link. (Pages 16 and 17)

Amended Claim 1 claims a method for transmitting a digital data stream in which the data stream is encoded and parity bits are attached prior to transmission:

1. (Currently Amended) A method for transmission, in real time of a speech block having a first bit rate containing parameters representing the data in the corresponding segment of a digital data stream, comprising the steps of
 - compressing said speech block in an encoder at a first node, whereby a second bit rate, being considerably lower than the first bit rate, is obtained,
 - supplying error discovering encoding in the encoder at the first node, after the compression, whereby the compressed speech block obtains a third bit rate, being slightly higher than the second rate,
 - sorting positions of speech parameters in said compressed speech block according to importance;
 - sending the compressed speech block through a transmission chain comprising a radio link (RL) and a statistically multiplexed packet-oriented link, wherein said radio link and said packet oriented link are connected via a radio base station (BTS) in a mobile radio network (PLMN);
 - decompressing the speech block at a second node, whereby the first bit rate is regained,
 - comparing, at the second node, parity bits associated with said speech block for discovery of errors in the data stream,

Appl. No. 09/612,628
Amdt. Dated July 8, 2003
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Attorney Docket No. P11542/040020-276
EUS/JJP/03-3065

wherein at least one of the first and second nodes is part of the mobile radio network (PLMN). (Emphasis added)

The Applicant respectfully submits that the emphasized limitation is not taught or suggested in Hellwig or DeJaco or a combination of the references.

DeJaco detects bad data packets by examining speech signals, which are atypical of the signal. In other words an incoming signal is analyzed and compared to predetermined ranges of the expected signal. If a packet does not fit within the ranges such packets are detected and eliminated. (Col. 4, L 1-37)

Hellwig discloses a system for transmitting alternating speech and data in a digital communication network. A inband signaling bit pattern is included in selected data blocks to indicate the type of data that follows. The receiver interprets the following data as speech or data according to the bit pattern. (Abstract)

As noted in amended Claim 1, the present invention provides error detection in the encoder and sorts speech parameters contained in the speech block according to the parameter priority. Neither Hellwig nor DeJaco sort parameters contained in a created speech block that corresponds to a data portion of a data stream. Hellwig provides a signal indicating the type of following data and DeJaco analyzes parameters in a received packet to determine whether or not to eliminate the packet. Neither Hellwig nor DeJaco nor a combination of Hellwig and DeJaco teach or suggest sorting parameters or creating a speech block. Therefore, amended Claim 1 is patentable over the Hellwig and DeJaco references.

Claims 2, 3 and 8-10 depend from Claim 1 and contain the same novel limitations as Claim 1. Therefore, Claims 2, 3 and 8-10 are patentable over Hellwig and DeJaco.

Claims 4-5 are rejected under 35. U.S.C § 103(a) as being unpatentable over Hellwig and DeJaco and further in view of Kalliokulju et al. (U.S. Patent 6,385,451. B1) hereinafter Kalliokulju. The Applicant respectfully traverses the

Appl. No. 09/612,628
Amdt. Dated July 8, 2003
Reply to Office action of April 8, 2003
Attorney Docket No. P11542/040020-276
EUS/WP/03-3065

rejection and submits that Kalliokulju is cited merely adding the step of sorting parameters in a data block.

Kalliokulju discloses a method of handing over between networks which includes ranking data blocks according to a ranking order. Packets of a higher priority flow are transmitted more frequently than packets of a lower priority flow. (Col. 6, L 24-36). This reference ranks data blocks (packets) according to importance, however, the present invention ranks data blocks corresponding to parameters provided in a created speech block. Therefore, the cited references do not render Claim 4 obvious either individually or in combination. Since Claim 5 depends from Claim 4 and contains the limitations of Claim 1 and Claim 4, Claim 5 is also patentable over the above cited references both individually and in any combination.

Claims 6-7 are rejected under 35. U.S.C § 103(a) as being unpatentable over Helwig, DeJaco and Kalliokulju and further in view of Jarvinen et al. (U.S. Patent 6,470,470 B1) hereinafter "Jarvinen". Claims 6-7 have been canceled rendering rejection of those claims moot.

Claims 11-15 are rejected under 35. U.S.C § 103(a) as being unpatentable over Helwig and further in view of Kalliokulju. The Applicant respectfully traverses the rejection and directs the Examiner's attention to amended Claim 11.

11. (Currently Amended) An encoder unit having means to receive a data stream having a first bit rate, and means to compress the data stream by dividing the data stream into segments corresponding to partial periods, comprising:

means for creating a speech block (SPB) for each partial period containing parameters representing the data in the corresponding segment, whereby a stream of said speech blocks is produced having a second bit rate considerably lower than the first bit rate;

means to supply parity bits to the speech block for the discovery of errors occurring during transmission of the speech block; and

means to sort the position in each said speech block of the parameters being part thereof, alternatively the bits being part thereof.

Appl. No. 09/612,628
Amdt. Dated July 8, 2003
Reply to Office action of April 8, 2003
Attorney Docket No. P11542/040020-276
EUS/J/P/03-3065

according to a predetermined order based on the mutual importance of the parameters, alternatively of the bits. (emphasis added)

The Applicant respectfully submits that the above emphasized limitations are not taught or suggested by Hellwig or Kalliokulju or a combination of both.

Kalliokulju discloses a method of handing over between networks which includes ranking data blocks according to a ranking order. Packets of a higher priority flow are transmitted more frequently than packets of a lower priority flow. (Col. 6, L 24-36). However, the present invention creates "speech blocks. A speech block is periodically formed according to incoming speech and the speech block contains speech parameters representing the incoming speech. (Page 13, Lines 1-17) Sorting of the parameters takes place when the speech block is sent to the base station. Further, parity bits are attached according to class and the bits allow for sorting according to importance of the class (class 1 or 2 as noted in the specification described on page 15). Neither Hellwig nor Kalliokulju teach or suggest sorting parameters in a speech block or alternatively, bits representing Class 1 or Class 2 speech parameters. Therefore, amended Claim 11 is patentable over the Hellwig and Kalliokulju references, individually and in combination. Accordingly, dependent claims 12-15 contain the same novel limitations and are also patentable over the Hellwig and Kalliokulju references. The Applicant respectfully submits that Claims 11-15 are now in condition for allowance.

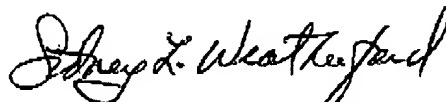
Appl. No. 09/612,628
Amdt. Dated July 8, 2003
Reply to Office action of April 8, 2003
Attorney Docket No. P11542/040020-276
EUS/J/P/03-3085

CONCLUSION

In view of the foregoing remarks, the Applicants believe all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for Claims 1-5 and 8-16.

The Applicants request a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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